

**TRACKING TELESCOPING OUTRIGGER**

**BACKGROUND OF THE INVENTION**

**Cross Reference to Related Applications**

This application claims the benefit of the filing date of our prior co-pending provisional application no. 60/450,832, filed February 28, 2003 and the provisional application no. 60/396,067 filed July 15, 2002 which was referenced therein, the disclosures of which are incorporated herein by reference as if fully set forth.

**Technical Field**

This invention relates to fishing gear for use on a boat and, in particular, to a piece of equipment known as an outrigger for guiding trolling lines outwardly from the boat for luring fish.

**Description of the Prior Art**

In the prior art, sport fishing boats are typically equipped with outriggers for extending fishing and trolling lines out and beyond the wake of the moving boat and into calmer water where the fish are more apt to take the lure or bait. One such outrigger is shown in U.S. Patent 5,921,196, issued July 13, 1999. Figure 18 thereof is reproduced herein as Figure 1 (prior art). As shown therein, the outrigger consists of a plurality of telescopic outrigger tubes. At the bottom of the inner tube, there is a spring pin arrangement whereby when the outrigger is properly positioned, a spring urges a pin to pass through aligned holes in the tubes to lock the telescoping tubes in position. This spring pin arrangement is retained as more fully described therein.

Also in this device, a plurality of sleeves serve to position the holes in alignment so that the spring biased pin may pass therethrough. These comprise a sleeve 332 mounted on the outer wall of the inner tube 310, which sleeve ultimately engages a stop assembly and a stop bushing 352.

5        Mounted about the upper portion of the stop bushing 352 is a guide ring 354. All of these parts are permanently retained in their respective positions by epoxy or other type of glue. Thus, the bushing 352 and ring 352 are permanently fixed on the end of the outer tube. The same is true on the bung 342 which is permanently fixed to the inner tube 310.

Thus, this device provides no ready means for disassembly for cleaning and/or repairs.

10      Furthermore, this type of device does not provide a sure means to align the internally mounted button with the hole in the external tube to fix the tubes in the fully extended position.

#### **SUMMARY OF THE INVENTION**

I have provided an improved outrigger of the telescoping type which can be readily disassembled for cleaning and repair. This outrigger provides a means for retaining the spring; which means can be removed and cleaned. It also provides a means for positively tracking the 15     telescoping sections with respect to one another so that they cannot be substantially rotated. This provides a means such that such that the locking button always pops through the holes in the telescoping sections to lock the sections together in the extended position. In particular, I have invented an outrigger comprising a plurality of telescoping tubes capable of being retracted and extended with respect to one another, and further comprising at least one outer tube and one inner 20     tube; a sleeve juxtaposed between the inner and outer tubes; said sleeve having a first longitudinally extending tracking means thereon; said tubes having second longitudinal tracking means thereon coacting with said first tracking means to permit the tubes to be retracted and extended, while

preventing substantial relative rotation therebetween; and locking means to lock the tubes in an extended position.

#### **BRIEF DESCRIPTION OF DRAWINGS**

5 Figure 1 is a view from a prior art outrigger patent shown partially broken away and in section;

Figure 2 is an exploded perspective view of portions of an outrigger in accordance with my invention;

Figure 3 is a cross section view of a portion of the outrigger shown in accordance with my invention;

10 Figure 4 is a sectional view of a portion of an outrigger in accordance with an alternate embodiment of my invention;

Figure 5 is a perspective view of a portion of an outrigger in accordance with my invention;

Figure 6 is a perspective view of a portion of the outrigger in accordance with my invention;

Figure 7 is a sectional view of a portion of the outrigger in accordance with my invention;

15 Figure 8 is a sectional view of a portion of an outrigger in accordance with my invention;

Figure 9 is an exploded perspective view of portions of a telescoping outrigger in accordance with my invention;

Figure 10 is a full view and partial section of a portion on a telescoping outrigger in accordance with my invention;

20 Figure 11 is a view of parts of a telescoping outrigger in accordance with an alternate embodiment of my invention; some shown in section and some shown in full lines;

Figure 12 is an exploded perspective view of portions of an outrigger in accordance with an

alternate embodiment of my invention;

Figure 13 is a perspective view partially exploded of a portion of an outrigger in accordance with an alternate embodiment of my invention; and

5 Figure 14 is an exploded view partially in full lines and partially in section of an assembled outrigger in accordance with my invention.

#### **DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Referring to the Figures, a portion of an outrigger is shown in Figures 2 and 3 and comprises an outer tube 20 telescoping with an inner tube 22. My invention provides a positive means for tracking the tubes as they are manipulated from the retracted to the extended position. This tracking 10 means consists of a longitudinally extending protrusion running the length of an outer tube 20 and a longitudinally extending groove running the length of a mating sleeve 30. These parts are shown, for example, in Figures 2, 3 and 5, wherein the protrusion is illustrated at 70 and groove is shown 15 at 72.

An additional longitudinally extending protrusion on the inner wall of the sleeve 30 is 20 provided at 74, Figures 2 and 3, to mate with an additional groove 76, in the next juxtaposed tube 22. These protrusions are shown in line radially in Figure 3. However, they need not be so aligned, as shown in Figure 4 at 70 and 174. Each protrusion must be in line with its mating groove. The 25 protrusions are designed so that when co-acting with the grooves, they do not permit the tubes to be substantially rotated with respect to one another; but merely to be extended with respect to one another. Thus, the clearance space which permits the tube and sleeve to slide back and forth with respect to one another, must, in accordance with my invention, be less than the full extension of the 30 protrusion through the clearance space and into its mating groove. This is illustrated in Figure 4

wherein the sliding action is provided by the clearance space "A"; but that sliding action clearance space "A" is less than the distance which the protrusion 70 extends from the wall of the tube 20 and fully into its mating groove 72 in the sleeve 30; that distance being identified by the letter "B".

These protrusions and grooves are shown in partial section in Figure 8.

5 This tracking is for the purposes of alignment of the button 25, Figure 7, with the hole 100 in the outer tube 20. Referring to Figure 7, the bottom of the inner tube 22 sits against a flange 52 of the retainer 26. The retainer 26 has a hole 28 therein retaining a spring 50 biasing the button 25 outwardly. Thus, when the inner tube 22 is moved from the retracted condition to the extended condition, the tracking of protrusions and grooves provides the means such that the button 25 will 10 always pass through the hole 100 and lock the parts together.

In accordance with my invention, one track is sufficient; however, it is within my invention to provide more than one track and protrusion, or longitudinal guide means, if so desired.

15 In order to retain the button 25 and have it tract with the tubes, I have provided a retention means designated generally 21 in Figures 5, 6, 7 and 8 which comprises a sleeve 30 and a retainer 26.

The retainer 26 has flat, longitudinally extending surfaces thereon, such as at 129, Figures 6 and 7. This configuration creates a space 127 between the retainer 26 and the internal surface of the sleeve 30; which space allows for water and debris to readily flow therethrough and be discharged from the bottom of the sleeve 30.

20 To retain the retainer 26 within the sleeve 30, I have provided a set screw 32 which is threaded into the retainer 26 through the wall of the sleeve 30.

The sleeve 30 is in sliding engagement with the outer tube 20.

The sleeve 30 has a groove 72 (Figure 5) on the outside to mate with the protrusion 70 on the inside of the outer tube 20.

The inner wall of the sleeve 30 has a longitudinally extending protrusion 74 which mates with the groove 76 in the outer wall of the tube 22.

5 The outer wall of the retainer 26, Figure 6 has a longitudinally extending groove 27 to embrace the protrusion 78 on the inner wall of the inner tube 22, Figure 2.

The retainer 26 has a flange 52 as an integral part thereof. This flange 52 rests upon an internal shoulder 54 in the sleeve 30, Figure 5.

The inner tube 22 is also connected to the retainer 26 by a set screw 29.

10 The inner tube 22 can be removed from the outer tube 20. When it is removed, sleeve 30 and retainer 26 stay attached to the inner tube 22. In the removed condition, the set screw 32 can be backed off to allow the sleeve 30 to be disengaged from the tube 22. Also the screw 29 can be backed off to allow the retainer 26 to be removed from the inner tube 22 and cleaned. This also allows replacement of the spring 50 or the button 25, if necessary.

15 The button 25 passes through a hole 35 in the sleeve 30. It also passes through a hole 37 in tube 22. To keep the button from being ejected through the hole 37, the button is provided with a flange 125 which extends beyond the periphery of the hole 37. Thus, when the spring 50 urges the button outwardly, the flange 125 will engage the inner wall of the tube 22 and prevent the button from being ejected from the tube.

20 Laterally extending drainage holes 200 are provided communicating through the flat surfaces 129 of the retainer 26 to the hole 28 which holds the spring 50. Thus, if debris gets into this area, it can readily exit through the drainage holes 200.

In Figure 9, the outer tube 20 is shown in an exploded view with a washer 14 positioned to engage the upper outside end surface of the outer tube 20.

Mounted about the washer 14 is a guide ring 18 for retaining the washer 14 in position at the outer end of the tube 20.

5 The inner diameter hole through the washer 14 is in sliding engagement with the outer surface of the inner tube 22 (as shown at 120, Figure 13) to guide the tube 22 while it is being retracted and extended.

10 A plurality of set screws 24, Figure 10, are threaded through the guide ring 18 to engage the surface of the outer tube 20 when fully assembled. The set screws are preferably cup-shaped at their engaging ends so as to provide a ring of contact against the outer surface of the outer tube. Cone point set screws could be used, but might have a tendency to score the surface of the tube and eventually create problems if they were repeatedly assembled and disassembled. Positioning a plurality of these set screws at various angles (such as 120 degrees, Figure 10) about the circumference of the guide ring 18 provides not only sufficient strength to retain the guide ring on 15 the outer tube; but also to prevent distortion of the outer tube. Thus, I have provided a means for fixedly attaching the washer 14 and retaining ring 18, yet permitting the outrigger to be disassembled.

20 As shown in Figure 10, the ring 18 is spaced from the outer wall of the tube 20. The washer 14, however, is not so spaced; but rather is in abutting engagement with the outer end surface of tube 20.

It is preferable to have the holes for the said screws 24 positioned closer to the vertical bottom of the retaining ring 18, as shown at 117 in Figure 9. This gives a sure engagement with the

tube 20; since the washer 14 occupies the upper portion of the inner cavity of the retaining ring 18.

In operation, the tubes can be taken apart by backing off the set screws 24, Figure 10, so that the ring 18 is disengaged from the outer tube 20.

If desirable for reinforcement purposes, a portion of the ring 18 can be thickened to 5 accommodate the threaded eye bolt 152; as shown at 150 in Figure 11.

If desirable, the washer 14 may include a thin downwardly depending section 114, Figure 12, embracing the outside of the outer tube 20, as shown in Figure 13. In such embodiment, indentations 187 may be provided to allow the set screws to push against this thin depending section 114 and force it against the outer wall of the tube 20. To accommodate the clamping movement, the 10 downwardly depending skirt 114 may be split, as at 115. Alternatively, the skirt can have holes instead of the indentations 187 to allow the set screws to pass through this skirt and onto the outer wall of the outer tube, as at 116 in Figure 13.